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Swine Health Management for Hawai'i

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This publication outlines a basic herd health program recommended for all swine herds in Hawai'i. On the advice of a veterinarian, other vaccines beyond the basic program can be used to control specific herd problems, especially in larger herds. If there are other problems in your herd, the first step should be to obtain a diagnosis from a veterinarian. Once the problem (or problems) has been identified, vaccination can be used as an aid in controlling the problem. Keep in mind that stress and the timing of vaccination can influence the effectiveness of a pig's response to any vaccine.

The specific products mentioned in this guide are included only as examples that meet the prevention strategy for the targeted organisms. There may be similar products available that can be substituted with equally beneficial results. Consult with your veterinarian to choose the best products for your farm.

Always follow the label instructions for all veterinary products, and always observe appropriate withdrawal times (the amount of time you must wait before slaughtering an animal for human consumption after administering a veterinary product). Vaccines have a 21-day withdrawal time, and withdrawal times for antibiotics and dewormers vary.

Cleaning and disinfection

Cleaning refers to the physical removal of organic debris. For disinfectants to be effective, the surface or object to be disinfected must be clean; organic material such as dirt or feces reduces the effectiveness of disinfectants. Thorough washing will remove 95% of all microbes. Soap products are commonly used for cleaning, as they help penetrate and break up stubborn materials. Liquid dish detergent diluted in warm water is an example of a good cleaning agent. However, soap residues can inactivate some disinfectants, so be sure to thoroughly rinse with clean water. Don't forget to wash your hands.

Disinfection refers to the use of a chemical or physical agent to kill vegetative forms of bacteria, fungi, and viruses. Disinfectants (see p. 5) will not sterilize a surface but will reduce pathogen numbers more dramatically than cleaners. Regardless of the product used, for adequate disinfecting to occur most manufacturers recommend a contact time of 10–20 minutes.

Biosecurity practices and other general recommendations

- Clean and then disinfect footgear, pens, crates, equipment, vehicles, and trailers.
- Use strict hygiene when docking tails, clipping teeth, and giving injections.
- Wear well-laundered, clean coveralls or disposable Tyvek® coveralls.
- Limit access to your farm; do not visit other hog farms unless clothing is changed and boots are disinfected before returning.
- Observe withdrawal times for antibiotics, vaccines, and dewormers.

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1. The basic breeding herd program for parvovirus, erysipelas, and leptospirosis

Pig type/age	Treatment timing	Example products	Other management recommendations
Sow	One vaccination 2–4 weeks before breeding.	Farrowsure® Plus Farrowsure® Plus B Parvo Shield® L5E Suvaxyn® PLE+B	Wash, deworm,* and treat for mange 3–10 days before farrowing. Clean and disinfect farrowing crates; all-in-all-out if possible. Ensure adequate fiber in diet prior to farrowing. If difficulty farrowing or low milk production, use oxytocin and Banamine® injections (both require a veterinarian's prescription).
Gilt	Two vaccinations 3–5 weeks apart with second dose 2–4 weeks before breeding.		Same as for sow.
Boar	Vaccinate every 6 months. Deworm* every 6 months.		Same as for sow, *plus:* Trim tusks as needed. Treat for mange every 6 months.

*See Table 5 (p. 4) for a list of products and withdrawal times.

2. The nursing piglet program

Pig type/age	Disease or condition	Treatment timing	Example products	Other management recommendations
Nursing piglet	Mycoplasma hyopneumoniae	One or two vaccinations (depending on label directions) with first dose at 1–4 weeks or older (as indicated on label)	Respisure-One® Myco Shield™ Suvaxyn® MH-one	Clip eye teeth at birth. Ensure adequate colostrum intake. Provide heat lamp if necessary. Cross-fostering can be helpful in large litters to ensure adequate nutrition but should be limited to the first 24 hours after farrowing; do not cross-foster sick piglets. Inject iron in neck at 1–3 days of age (Ferrodex® 100 injection). Castrate at 3–7 days of age; wipe area with iodine and use sterile scalpel or side-cutting pliers.
	Circovirus* (if suspected or diagnosed)		Ingelvac® CircoFLEX™ Circumvent® PCV Suvaxyn® PCV2	

*If purchasing weaned pigs that have not been vaccinated for circovirus, they may be vaccinated after purchase in conjunction with isolation before introduction into the herd. Although not as ideal as vaccinating the piglet before weaning, this delayed vaccination strategy provides some benefit on farms having problems with circovirus, provided it is combined with a sufficient isolation period—ideally of two weeks—before introducing the pig into the rest of the herd.

3. The growing pig program

Pig type/age	Disease or condition	Treatment timing*	Example products	Other management recommendations
Grower, finisher	Bordatella bronchiseptica, Erysipelas, Haemophilus parasuis, Pasteurella multocida Circovirus***	Two vaccinations, first dose at age 3–4 weeks, repeat 2–3 weeks later.	Rhinogen® BPE or Parapleuro Shield® P+BE (includes Actinobacillus, another respiratory pathogen)	Deworm** 1 week after weaning, repeat 1 month later. Treat for mange at age 3 months. Do not mix batches; do not re-mix finishers; all-in-all-out if possible. Do not overcrowd pens; use solid partitions between pens.

*Pigs become vulnerable to infections at about 16 weeks of age, when antibodies obtained from the sow become less effective.
**See Table 5 (p. 4) for a list of products and withdrawal times.
***See note below *2. The nursing piglet program*.

4. Other vaccines for problems in some herds: check with a veterinarian

Pig type/age	Disease or condition	Treatment timing	Example products	Notes
Pregnant sow, gilt	Scours/diarrhea in nursing piglets	Two vaccinations 3 weeks apart with second given 3–4 weeks before farrowing.	Vaccines available alone or in combination.	Will provide antibodies in the colostrum to prevent scours in piglets.
	E. coli, Clostridium perfringens, Rotavirus		Prosystem® RCE includes all three.	
Piglet	Pneumonia, diarrhea, and septicemia caused by Salmonella cholerasuis	Age 3 weeks	Salmo Shield® or Argus®	
	PRRS Swine influenza	Consult your veterinarian		

5. Swine dewormers and drugs for mange and lice

Problem	Compound type	Product name	Administration route	Withdrawal time
Roundworms (ascarids), nodular worms	Dichlorvos	Atgard®	In the feed	None
	Fenbendazole	Safe-Guard®	In the feed	None
	Ivermectin, Doramectin	Agri-Mectin®	Injection	18 days
		Dectomax®	Injection	24 days
		IVOMEC®	In the feed	5 days
		IVOMEC®	Injection	18 days
	Levamisole	Levasole®	Drinking water	9 days
		Tramisol®	Drinking water	72 hours
	Piperazine	Wazine®	Drinking water	21 days
	Pyrantel	Banminth®	In the feed	24 hours
Migrating worm larvae	Fenbendazole	Safe-Guard®	In the feed	None
	Ivermectins*			
Whipworms	Dichlorvos	Atgard®	In the feed	None
	Fenbendazole	Safe-Guard®	In the feed	None
Strongyloides	Levamisole	Levasole®	Drinking water	9 days
		Tramisol®	Drinking water	72 hours
Kidneyworms (adult)	Fenbendazole	Safe-Guard®	In the feed	None
	Levamisole	Levasole®	Drinking water	9 days
		Tramisol®	Drinking water	72 hours
Mange** and lice	Amitraz	Taktic® E.C.	Topical	3 days
	Ivermectin, Doramectin	Agri-Mectin®	Injection	18 days
		Dectomax®	Injection	24 days
		IVOMEC®	In the feed	5 days
		IVOMEC®	Injection	18 days
	Permethrin	Atroban® 11% EC	Topical	5 days
		Atroban® 42.5% EC	Topical	5 days
		Permethrin 10%	Topical	5 days
		Prozap® Insectrin® X Concentrate	Topical	5 days
		Y-Tex® GardStar® 40% EC	Topical	5 days
	Phosmet	Vet-Kem® Paramite® L.A.	Topical	1 day
Lice only	Coumaphos	Y-Tex® Co-Ral® Livestock Dust	Topical	None
	Permethrin	Horse Lice Duster™ III	Topical	5 days
		Screw Worm Aerosol	Topical	5 days
		T-Tex® GardStar® Garden & Poultry Dust	Topical	5 days

*Ivermectins have been found to be effective in treating migrating worm larvae in humans; their effectiveness in treating migrating worm larvae in swine is unknown.

**Causes a rapidly spreading, scabby dermatitis and oftentimes will affect the ears as well as the body; mange will increase stress and make pigs more susceptible to other diseases.

If specifications on a product label differ from those given in this publication, follow the label. The user is responsible for reading the product label and following all directions and precautions. Mention of a trade or company name does not imply recommendation to the exclusion of other products that may also be suitable.

Disinfectants

Alcohols
- Generally limited to use as a hand sanitizer
- Effective on bacteria and many viruses

Household bleach
- Generally used in a dilution of 1 part bleach to 32 parts water (about ½ cup per gallon of water)
- Short contact time
- Effective on bacteria and all viruses
- Inexpensive
- Harsh on clothing and skin
- Corrosive to metal surfaces
- Dangerous when used in closed spaces due to the toxic fumes
- Do not mix with ammonia: can create highly toxic chlorine gas; be aware that some household dishwashing soaps and other cleaners contain ammonia; if soap is used for cleaning, be sure to rinse thoroughly before disinfecting with bleach.
- Bleach solutions lose strength over time, so new solutions should be made up regularly.

Oxidizing agents (potassium peroxymonosulfate)
(Virkon® S / DuPont)
- 1% strength is recommended for use around swine
- Safe
- Effective on bacteria and viruses
- Damaging to some metals

Chlorhexidine
(Nolvasan® / Wyeth)
- 4 to 6 tablespoons of Nolvasan per gallon of water
- Safe
- Effective on bacteria and some viruses
- Recommended contact time is about 5 minutes
- Not corrosive to metal surfaces

Quaternary ammonium compounds
(Roccal®-D / Pfizer)
- Effective on most bacteria and viruses
- Can be used as a one-step cleaning and disinfection product, thus you do not need to clean the surface prior to disinfecting; thoroughly rinse after use, because this product can be toxic
- Some residual effect

Quaternary ammonium + glutaraldehyde mixture
(Synergize / Preserve International)
- ½ oz per gallon water
- Cleaner and disinfectant combination
- Effective on bacteria and viruses
- Non-irritating, non-corrosive
- Specifically formulated for use in animal housing facilities and equipment in the facilities (waterers, feeders, hauling equipment, loading equipment, farrowing crates, nurseries, foot baths, etc.)

Inorganic iodine products
(povidone-iodine; many brands and manufacturers)
- Effective on bacteria and most viruses
- Low toxicity
- Low cost
- May penetrate some plastics

Phenolic products
(1-Stroke Environ® / Steris)
- Effective on bacteria and most viruses
- Cleans and disinfects with one application
- Can be toxic; thoroughly rinse after use; use with good ventilation
- Highly corrosive

Ammonia
(many brands)
- Irritating to the skin and respiratory tract